FIG.1
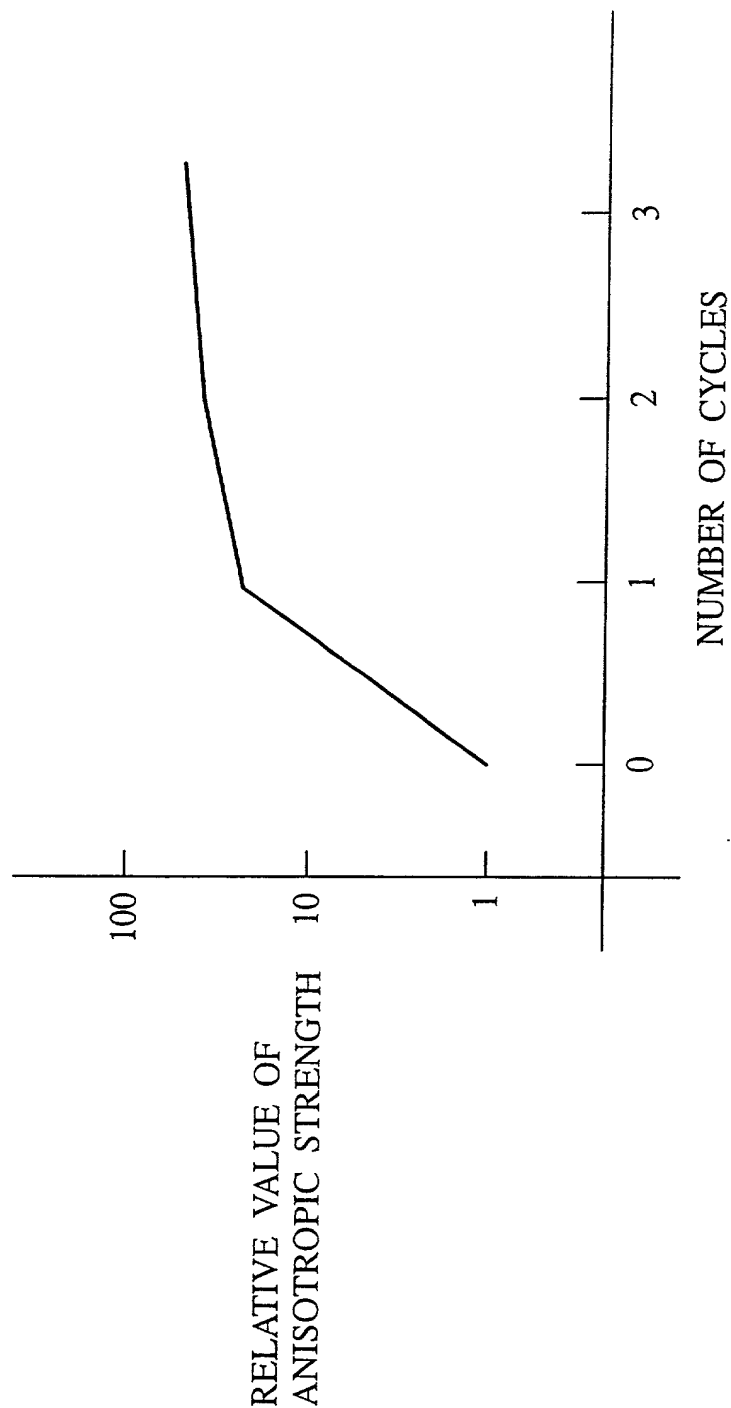

RELATIVE VALUE OF ANISOTROPIC STRENGTH
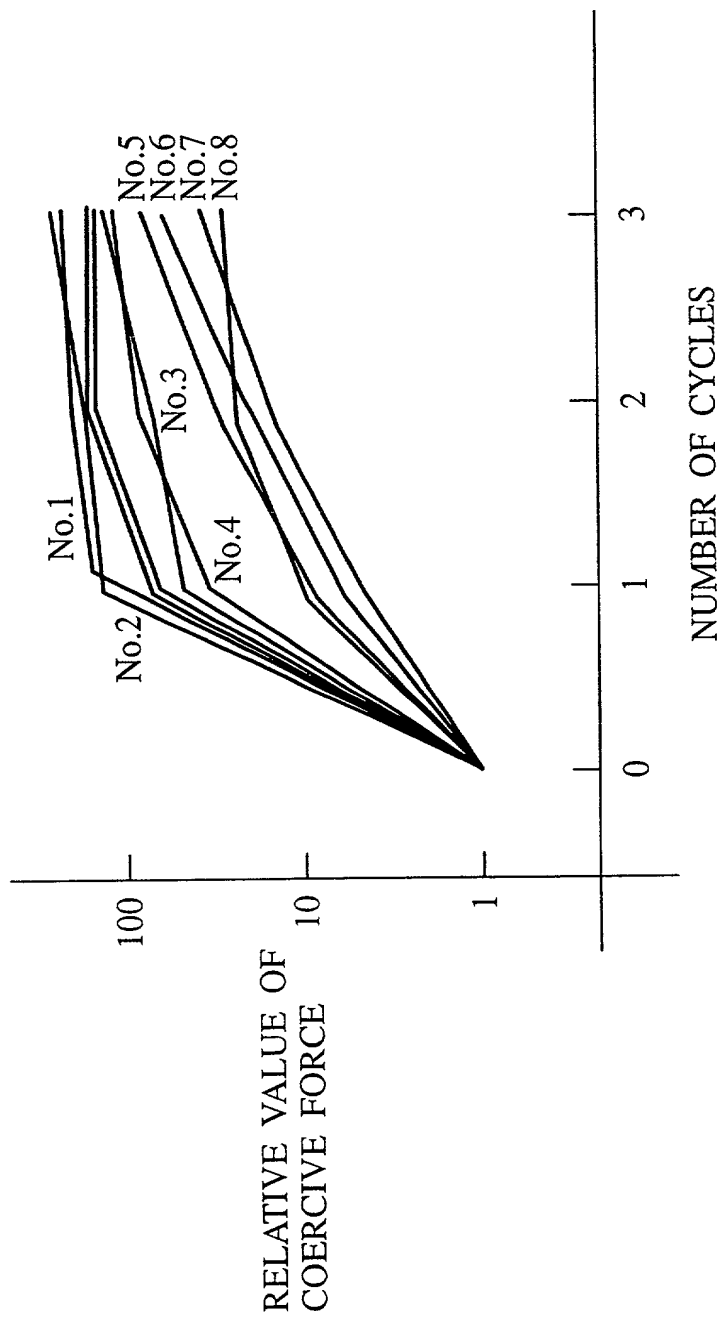
NUMBER OF CYCLES

RELATION BETWEEN NUMBER OF CYCLES AND
RELATIVE VALUE OF ANISOTROPIC STRENGTH
(COMPOSITION OF MAGNET MATERIALS: $Nd_4Fe_{69}Co_5Nb_3B_{19}$)

FIG.2

RELATIVE VALUE OF COERCIVE FORCE

NUMBER OF CYCLES

No.1
No.2
No.3
No.4
No.5
No.6
No.7
No.8

RELATION BETWEEN NUMBER OF CYCLES AND
RELATIVE VALUE OF COERCIVE FORCE
(VARIOUS ANISOTROPIC EXCHANGE SPRING MAGNETS IN TABLE 1)

FIG.3

RELATIVE VALUE OF
ANISOTROPIC STRENGTH

NUMBER OF CYCLES

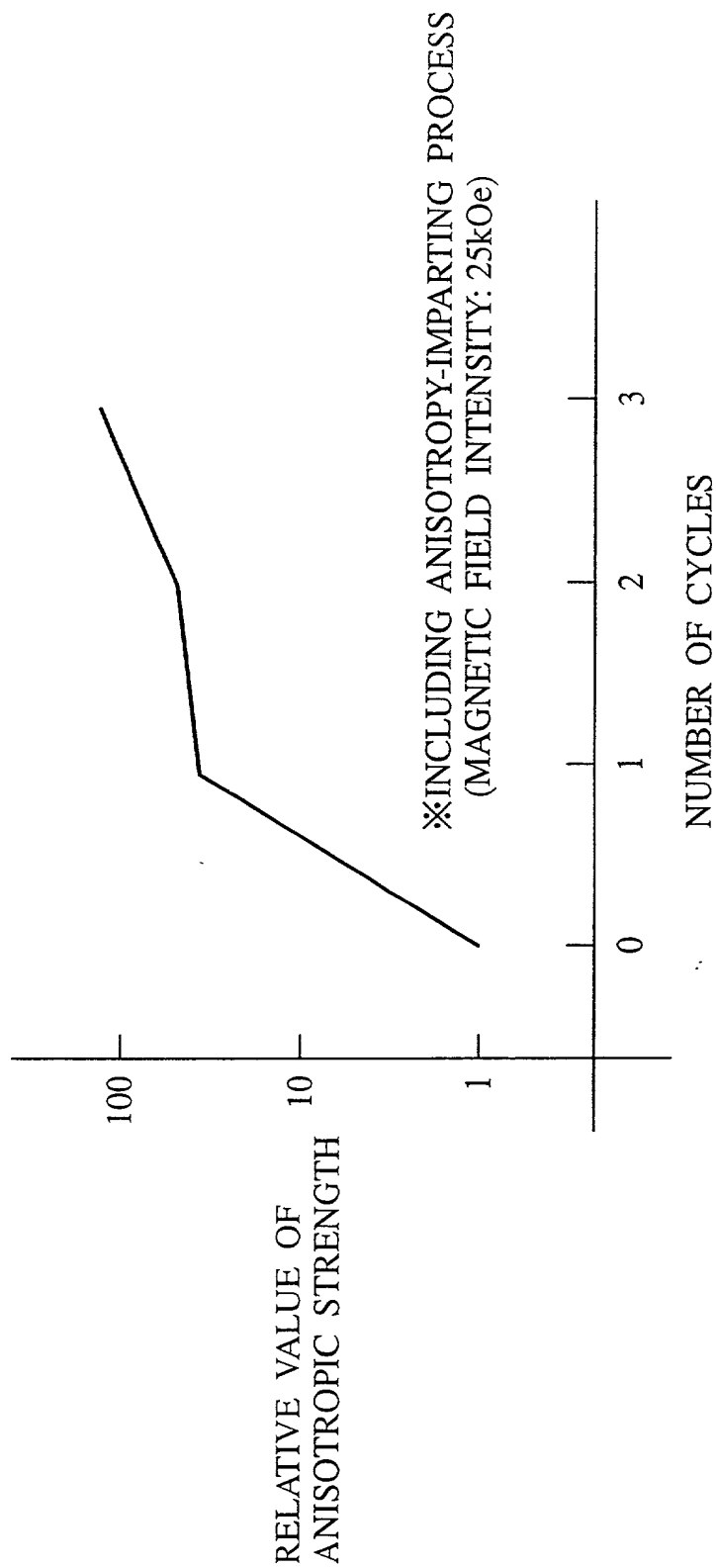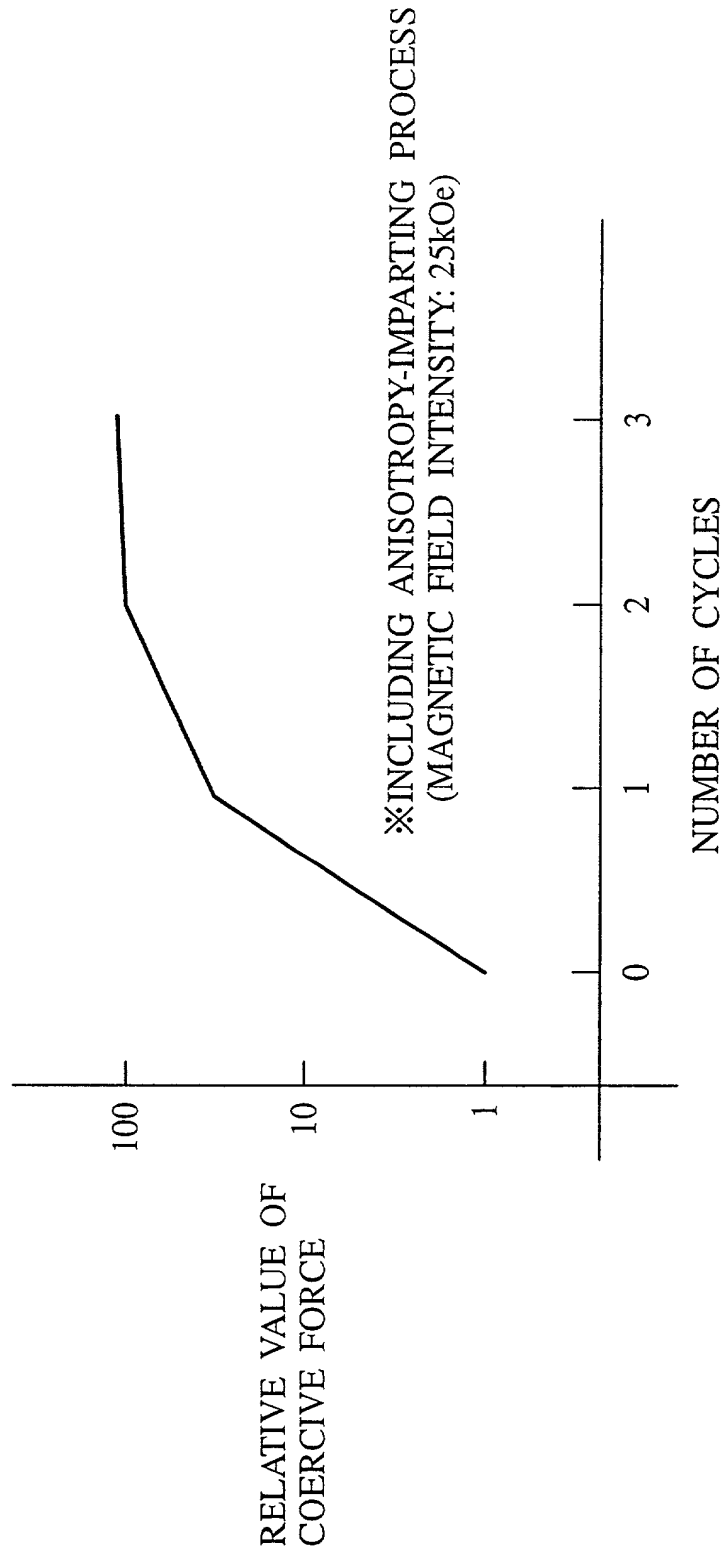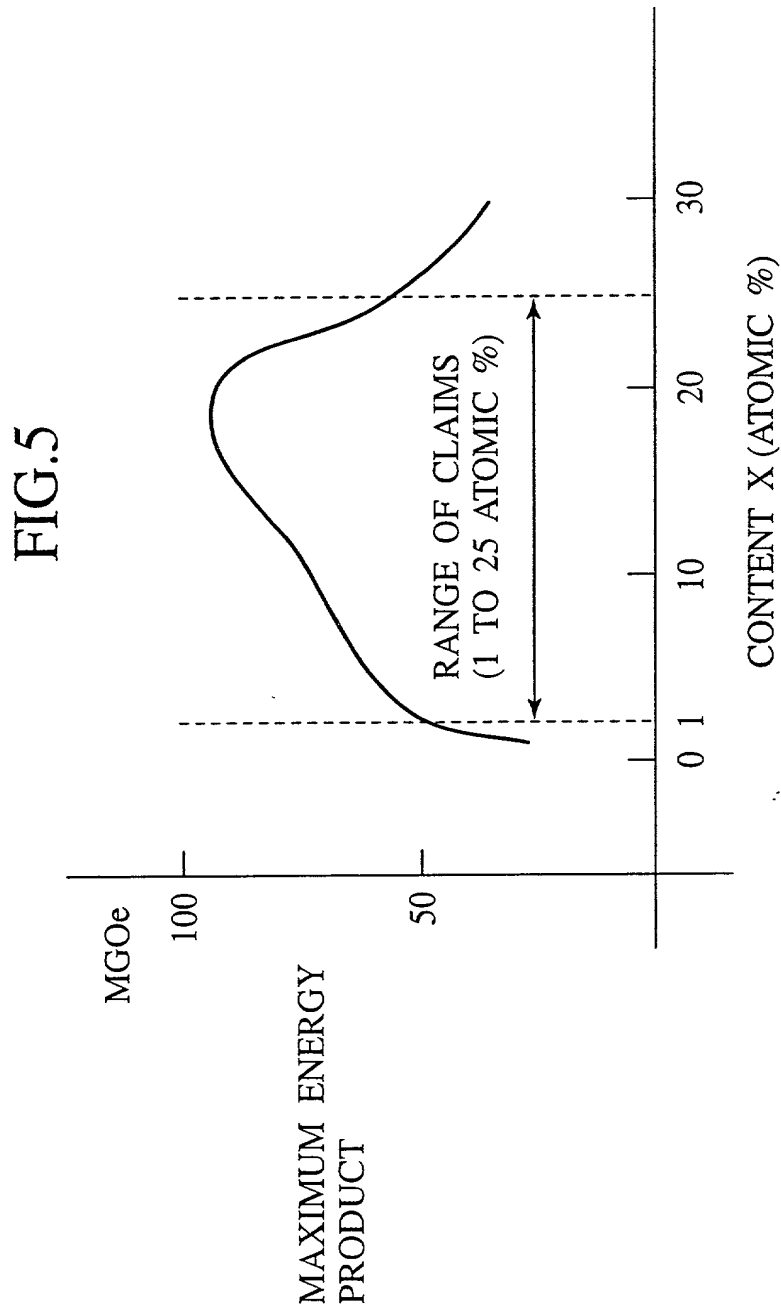※INCLUDING ANISOTROPY-IMPARTING PROCESS
(MAGNETIC FIELD INTENSITY: 25kOe)

RELATION BETWEEN NUMBER OF CYCLES AND
RELATIVE VALUE OF ANISOTROPIC STRENGTH
(COMPOSITION OF MAGNET MATERIALS: $Nd_4Fe_{68}Co_5Nb_3B_{20}$)

FIG.4

NUMBER OF CYCLES

RELATIVE VALUE OF COERCIVE FORCE

※INCLUDING ANISOTROPY-IMPARTING PROCESS
(MAGNETIC FIELD INTENSITY: 25kOe)

RELATION BETWEEN NUMBER OF CYCLES AND
RELATIVE VALUE OF COERCIVE FORCE
(COMPOSITION OF MAGNET MATERIALS: $Nd_4Fe_{68}Co_5Nb_3B_{20}$)

FIG.5

MAXIMUM ENERGY PRODUCT

MGOe

100

50

RANGE OF CLAIMS
(1 TO 25 ATOMIC %)

0 1   10   20   30

CONTENT X (ATOMIC %)
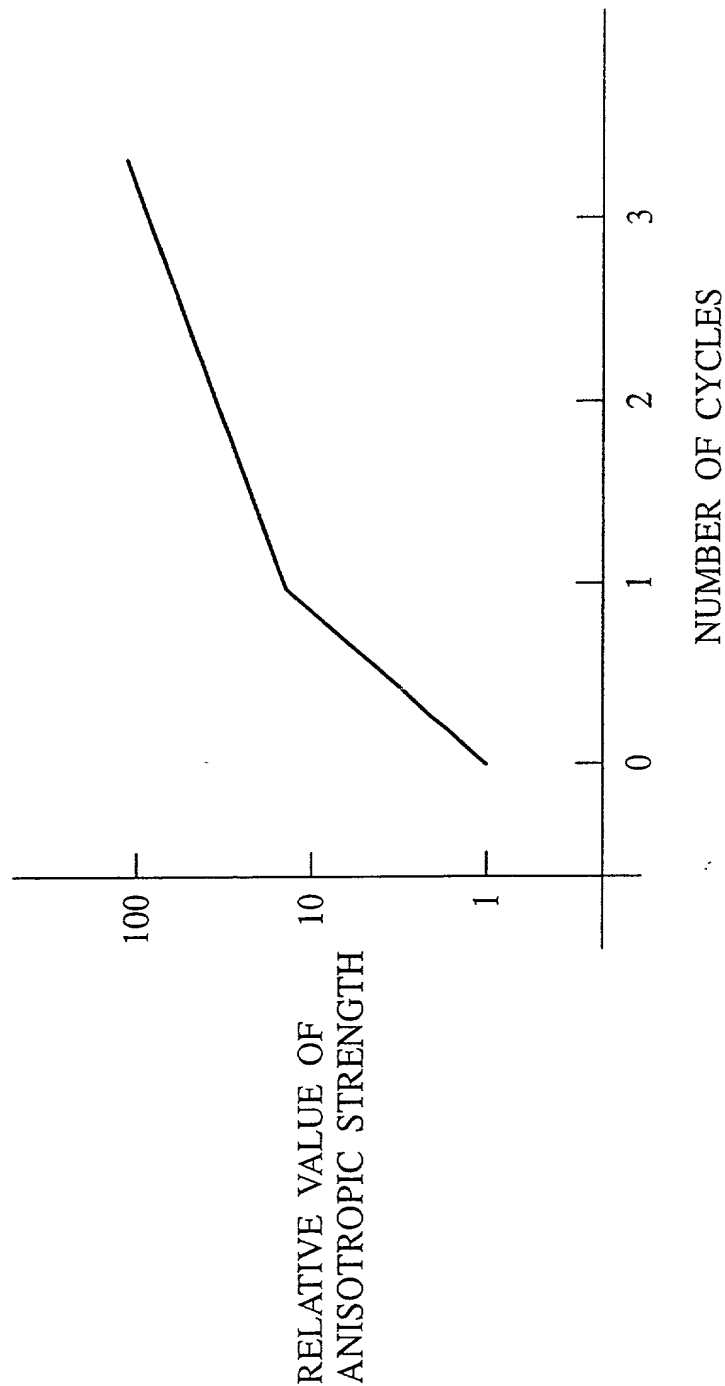
RELATION BETWEEN CONTENT X
AND MAXIMUM ENERGY PRODUCT
(COMPOSITION OF MAGNET MATERIALS: $Nd_4Fe_{88-x}Co_5Nb_3B_x$)

FIG.6

RELATIVE VALUE OF
MAXIMUM ENERGY PRODUCT

AMORPHOUS CONTENT (%)

RANGE OF CLAIMS
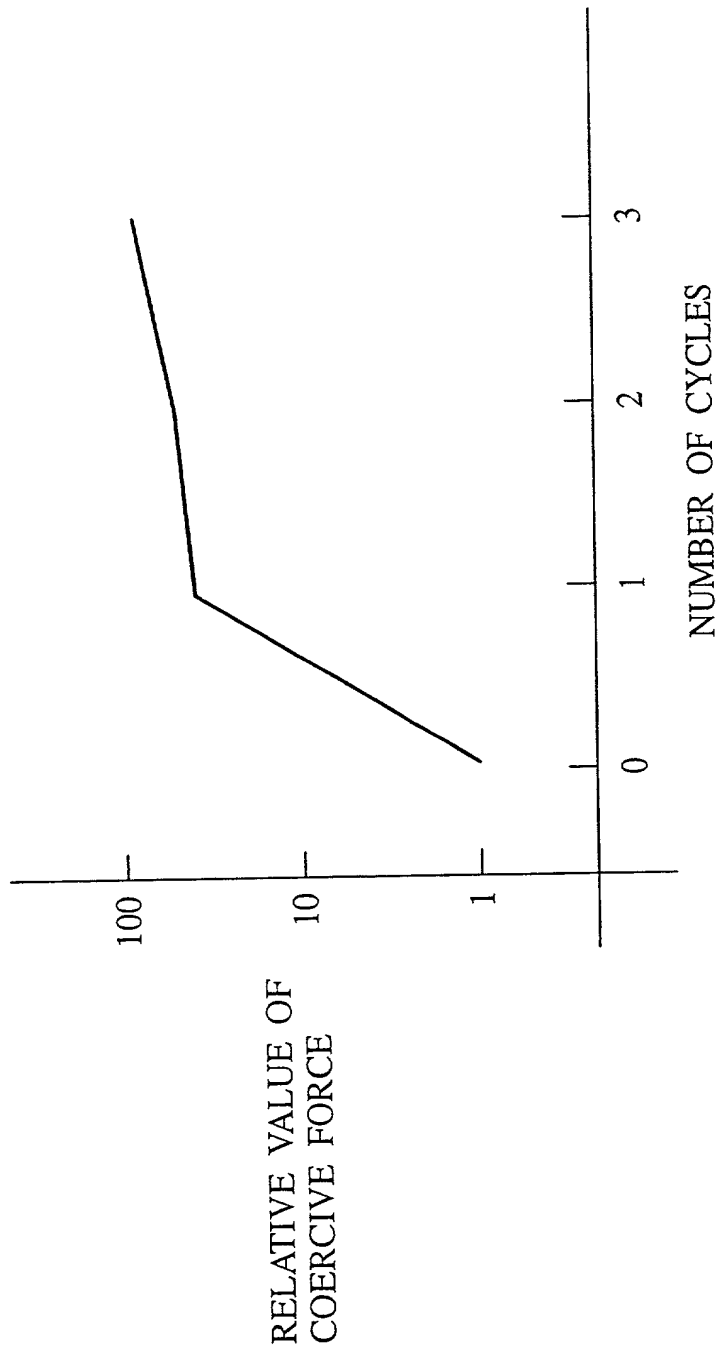(CONTENT OF AMORPHOUS
PARTS IS 95% OR LESS)

RELATION BETWEEN AMORPHOUS CONTENT AND
RELATIVE VALUE OF MAXIMUM ENERGY PRODUCT
(COMPOSITION OF MAGNET MATERIALS: $Nd_4Fe_{69}Co_5Nb_3B_{19}$)

FIG.7

RELATIVE VALUE OF
ANISOTROPIC STRENGTH

NUMBER OF CYCLES

RELATION BETWEEN NUMBER OF CYCLES AND
RELATIVE VALUE OF ANISOTROPIC STRENGTH
(COMPOSITION OF MAGNET MATERIALS: $Nd_9Fe_{75}Co_8V_2B_6$)

FIG.8

NUMBER OF CYCLES

RELATIVE VALUE OF
COERCIVE FORCE

RELATION BETWEEN NUMBER OF CYCLES AND
RELATIVE VALUE OF COERCIVE FORCE
(COMPOSITION OF MAGNET MATERIALS: $Nd_9Fe_{75}Co_8V_2B_6$)

FIG.9

RELATIVE VALUE OF
ANISOTROPIC STRENGTH

100

10

1

0   1   2   3

NUMBER OF CYCLES

※INCLUDING ANISOTROPY-IMPARTING PROCESS
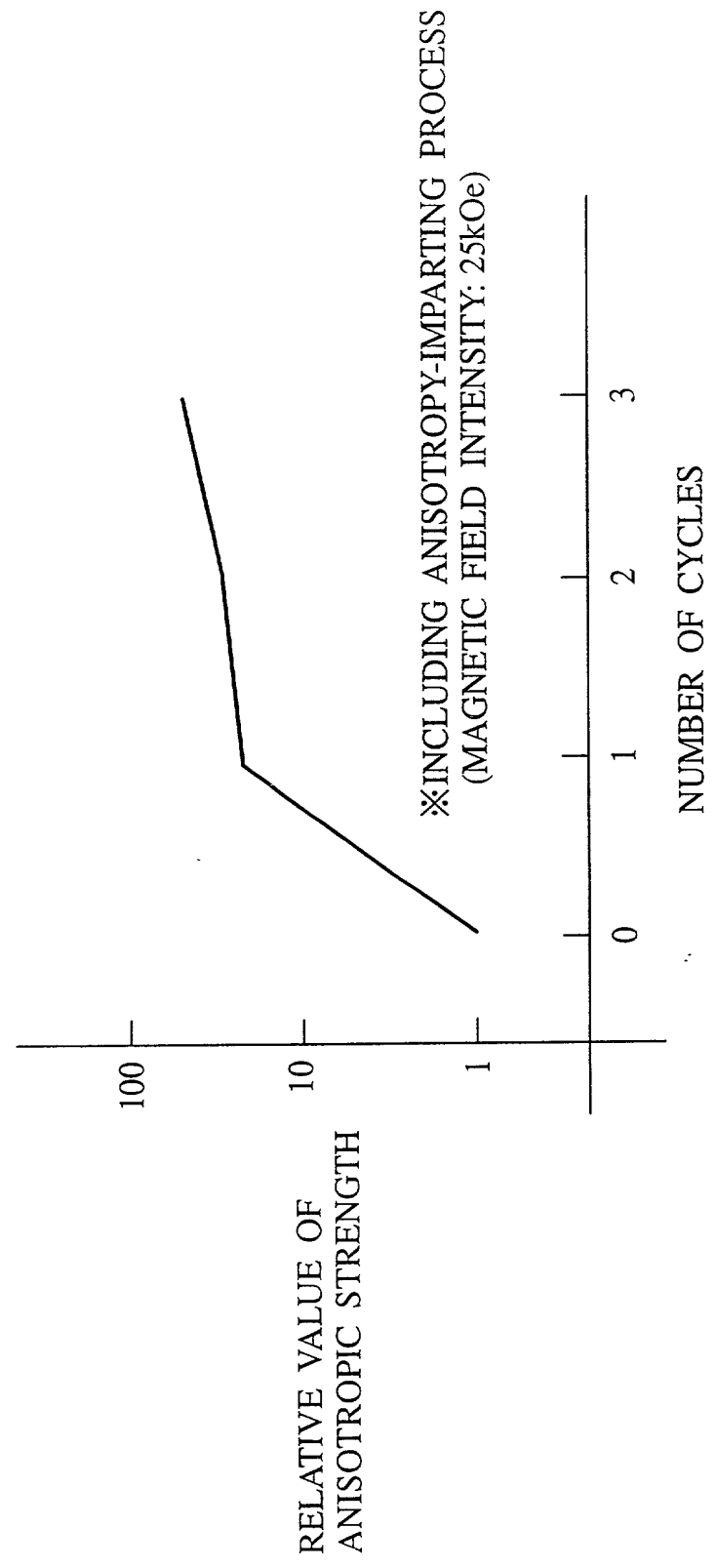(MAGNETIC FIELD INTENSITY: 25kOe)

RELATION BETWEEN NUMBER OF CYCLES AND
RELATIVE VALUE OF ANISOTROPIC STRENGTH
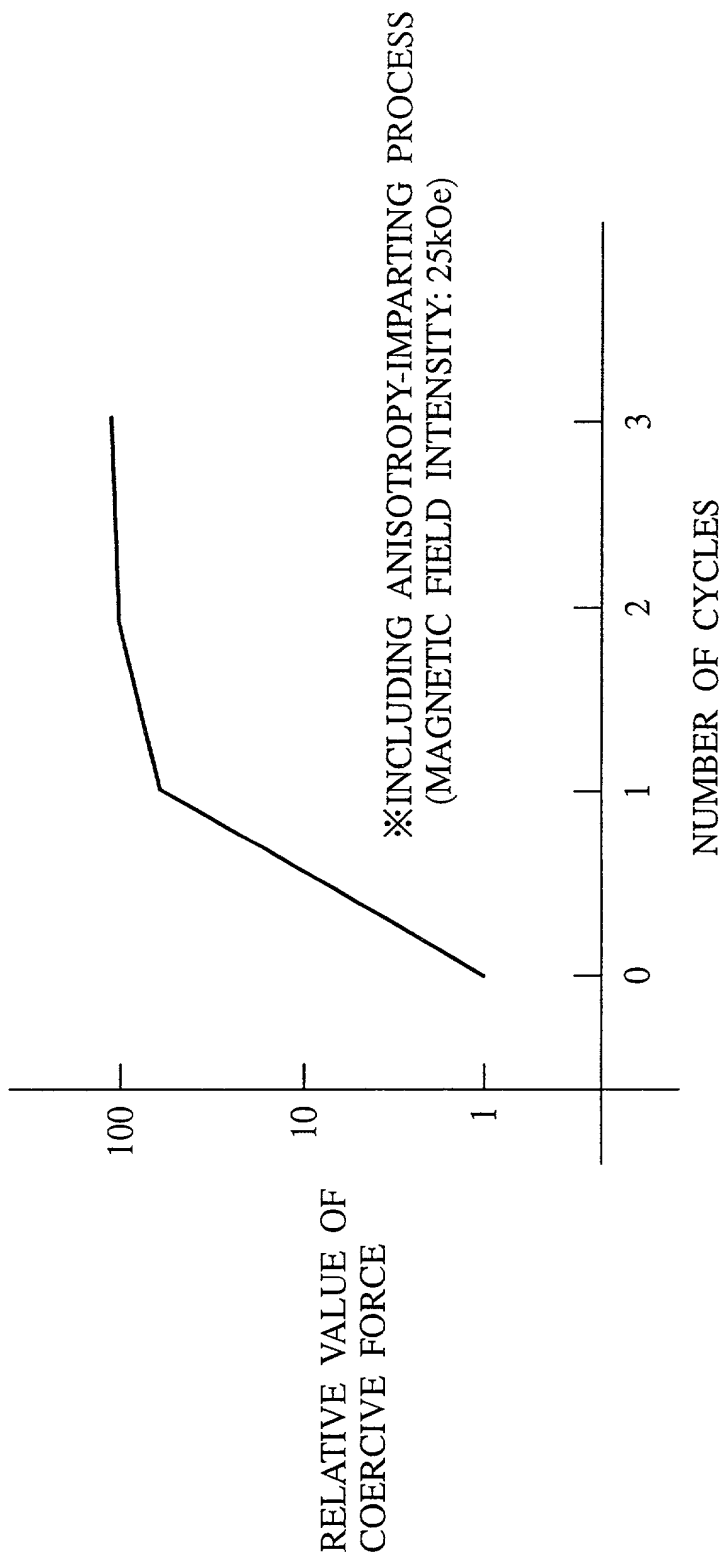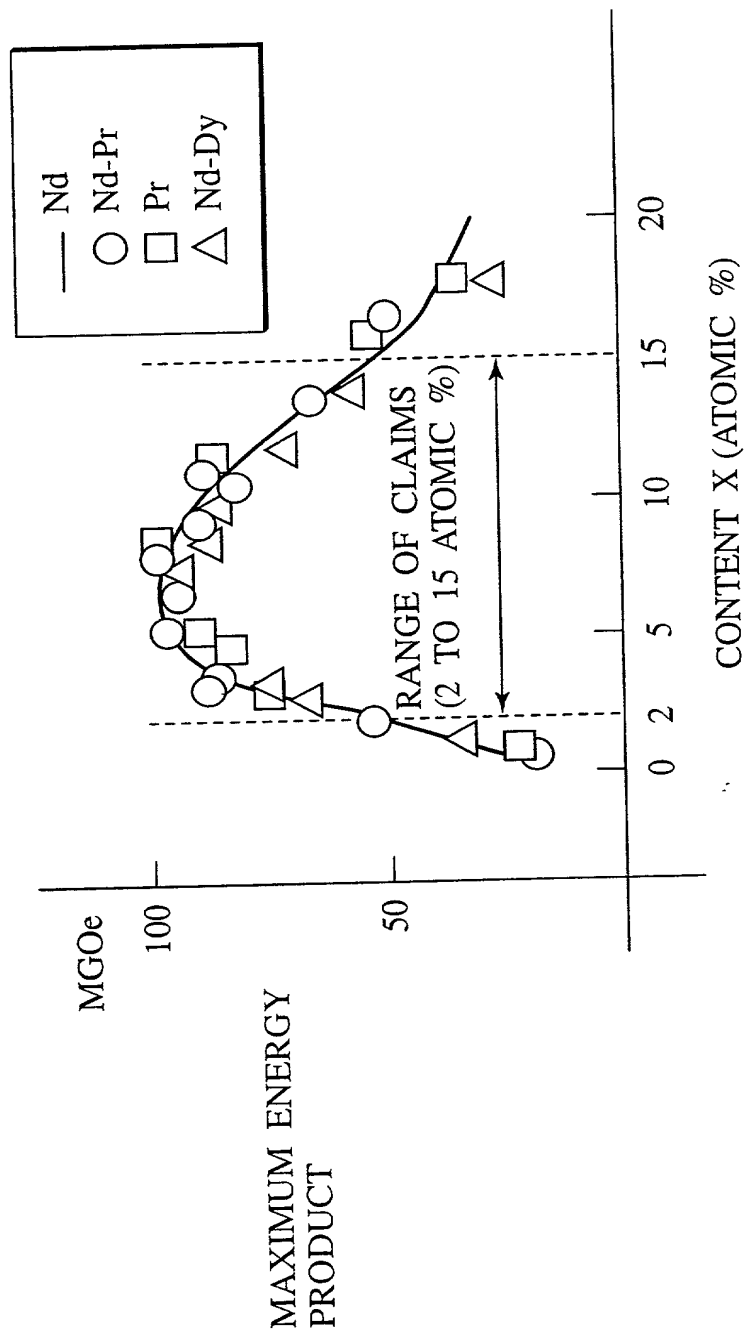(COMPOSITION OF MAGNET MATERIALS: $Nd_8Fe_{76}Co_8V_2B_6$)

FIG.10

RELATIVE VALUE OF COERCIVE FORCE

NUMBER OF CYCLES

※INCLUDING ANISOTROPY-IMPARTING PROCESS
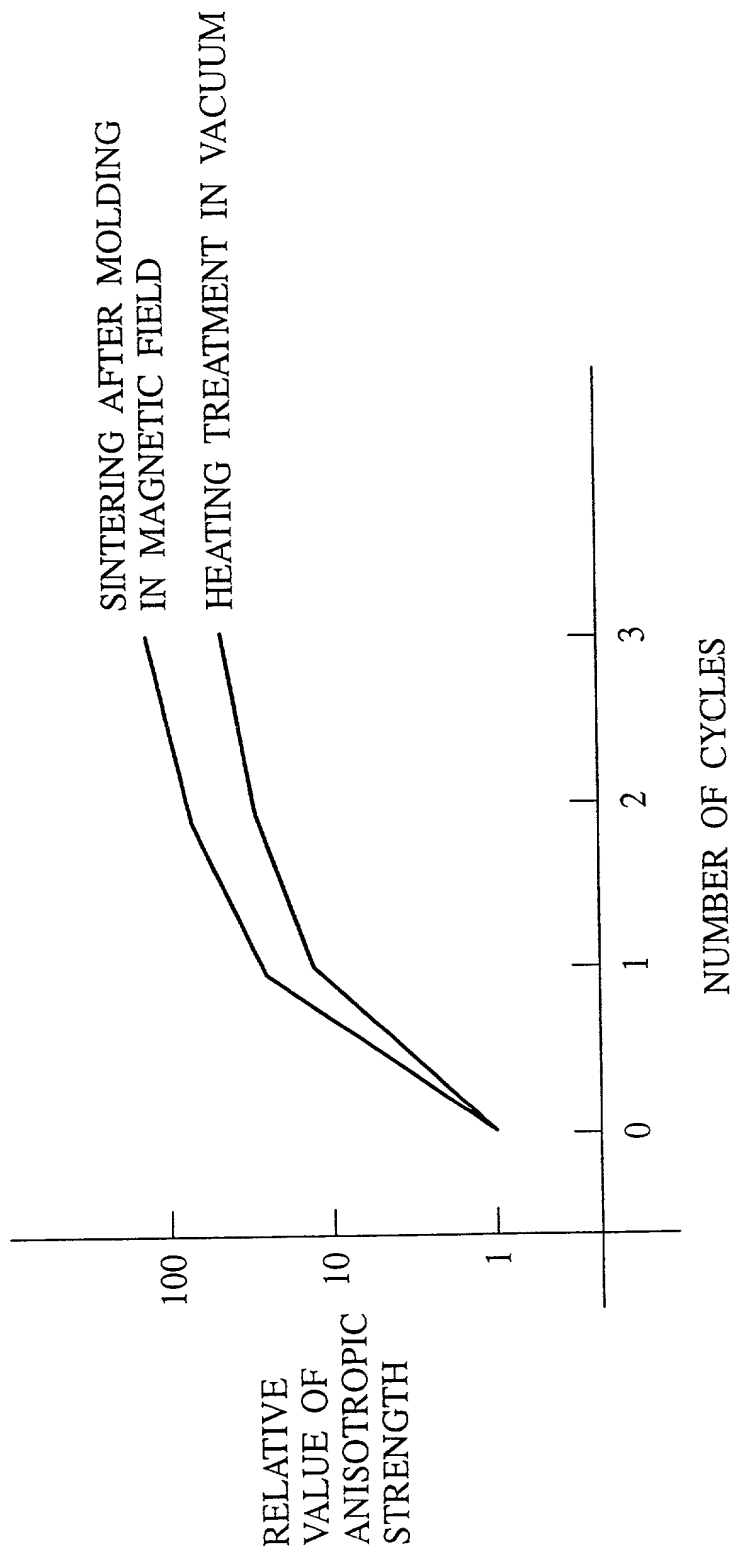(MAGNETIC FIELD INTENSITY: 25kOe)

RELATION BETWEEN NUMBER OF CYCLES AND
RELATIVE VALUE OF COERCIVE FORCE
(COMPOSITION OF MAGNET MATERIALS: $Nd_8Fe_{76}Co_8V_2B_6$)

FIG.11

MAXIMUM ENERGY PRODUCT

MGOe

100

50

0 2 5 10 15 20
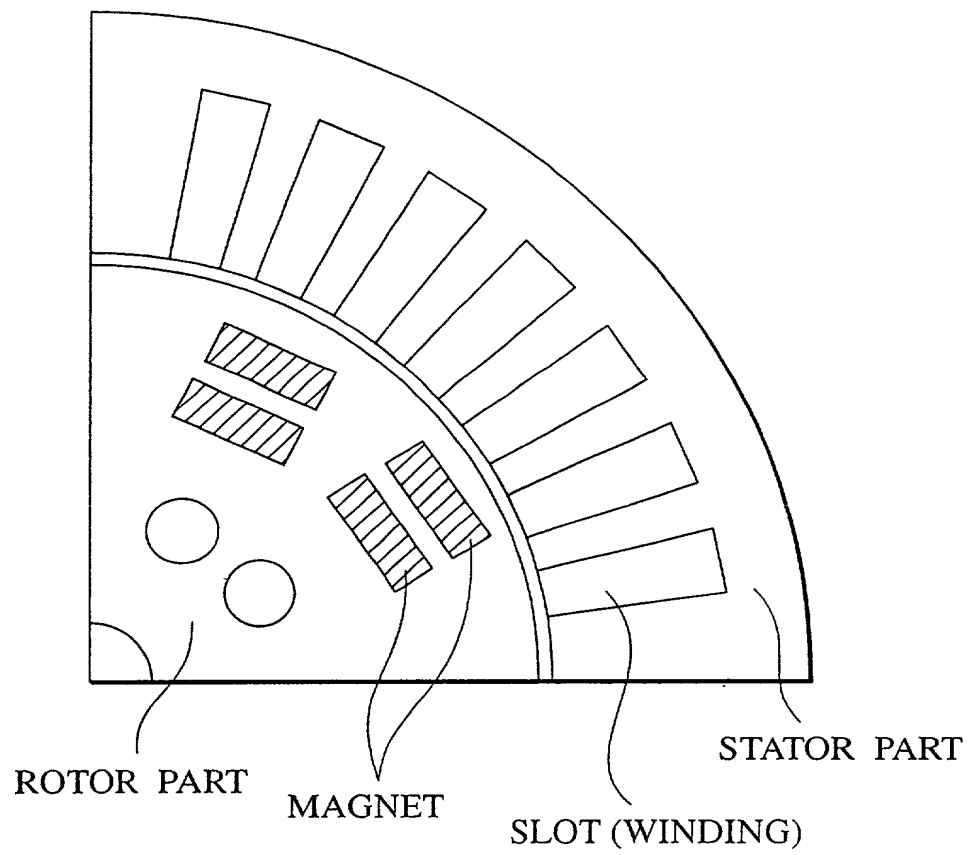
CONTENT X (ATOMIC %)

RANGE OF CLAIMS
(2 TO 15 ATOMIC %)

Legend:
— Nd
○ Nd-Pr
□ Pr
△ Nd-Dy

RELATION BETWEEN CONTENT X
AND MAXIMUM ENERGY PRODUCT
(COMPOSITION OF MAGNET MATERIALS: $Nd_xFe_{84-x}Co_8V_2B_6$)

FIG.12

SINTERING AFTER MOLDING
IN MAGNETIC FIELD

HEATING TREATMENT IN VACUUM

RELATIVE
VALUE OF
ANISOTROPIC
STRENGTH

100

10

1

0   1   2   3

NUMBER OF CYCLES

COMPARISON OF NUMBER OF CYCLES AND RELATIVE VALUE OF
ANISOTROPIC STRENGTH WHEN CRYSTALLIZATION TREATMENTS ARE DIFFERENT
(COMPOSITION OF MAGNET MATERIALS: $Nd_7Fe_{77}Co_8V_2B_6$)

FIG.13

ROTOR PART

MAGNET

SLOT (WINDING)

STATOR PART

STRUCTURE OF DRIVING MOTOR

FIG.14

No.	PRESENCE OR ABSENCE OF ANISOTROPY	MAIN PERMANENT MAGNET MATERIALS	MAIN SOFT MAGNETIC MATERIALS
1	PRESENT	Nd-Fe-B-BASED MATERIALS	Fe, Fe-B, Fe-C, Fe-Co
2	PRESENT	Sm-Fe-N-BASED MATERIALS	Fe, Fe-N, Fe-Co
3	PRESENT	Sm-Fe-N-B-BASED MATERIALS	Fe, Fe-N, Fe-B, Fe-Co
4	PRESENT	Nd-Fe-B-BASED MATERIALS TbCu7 type	Fe, Fe-B, Fe-Co
5	PRESENT	Sm-Fe-N-BASED MATERIALS TbCu7 type	Fe, Fe-N, Fe-Co
6	PRESENT	Sm-Co-BASED MATERIALS	Fe, Fe-Co, Co
7	PRESENT	Sm-Co-B-BASED MATERIALS	Fe, Fe-B, Fe-Co, Co
8	PRESENT	$Ba Fe_{12} O_{19}$ BASED MATERIALS $Sr Fe_{12} O_{19}$ BASED MATERIALS	Mn-Zn-BASED FERRITE Ni-Zn-BASED FERRITE Fe_3O_4-BASED FERRITE